

**REMARKS**

Claims 1-15 are pending in this application. The specification has been amended to correct clerical errors which can be seen from the disclosure at, e.g., page 21, lines 9-12. Applicants traverse the rejections for the reasons discussed herein.

Applicants thank the Examiner for having indicated as allowable claims 2-3, 6-9 and 12-15 if rewritten in independent form to include the limitations of the base claim, and any intervening claim, from which they respectively depend.

Applicants thank the Examiner for extending courtesies to Applicants' representative in the telephonic Examiner interview on May 19, 2009. Applicants' separate record of the substance of that interview is that Applicants' representative and Examiner Vetere discussed the application of the Kolla reference to claim 1.

**Response to Rejections under 35 U.S.C. § 102**

Claims 1, 4-5 and 10-15 are rejected under 35 U.S.C. § 102(b) as being anticipated by Kolla et al (Chromatographic, 23, 7, pp. 465-472).

The Examiner takes the position that Kolla et al discloses each feature of the foregoing claims.

In particular, during the telephonic interview conducted on May 19, 2009, the Examiner indicated that dicumylperoxide was considered to be the relevant solvent.

Applicants respectfully traverse. That is, one of ordinary skill in the art would not have considered dicumylperoxide as the relevant solvent.

A skilled artisan would have known that dicumylperoxide is organic peroxide and is used as an initiator in radical polymerization. The function of dicumylperoxide is different from that

of a solvent, and the amount of dicumylperoxide described as being used Kolla et al is far less than that of solvent.

In Examples of the present specification, AIBN (solid at room temperature) is used as an initiator in radical polymerization instead of dicumylperoxide; toluene is used as the solvent. It would have been clear to a person having ordinary skill in the art that dicumylperoxide is not a solvent. Moreover, the melting point of dicumylperoxide is 39 to 41°C, and it is solid at room temperature. It is commercially available as white powder. It would thus be impossible to use dicumylperoxide as the solvent. Further, if dicumylperoxide were used as a solvent, the carrier supporting polymer would be dispersed and heated in a large amount of peroxide. As this would be extremely dangerous, a person skilled in the art would not select such a procedure.

In view of the foregoing, Applicant respectfully requests that the Examiner more fully explain the rationale underlying the reasons for considering dicumylperoxide as the relevant solvent if the rejection is to be maintained.

Further, Applicants have the following comments on the Examiner's position set forth in the Office Action.

Firstly, Applicant has cited Kolla in the specification as background art (page 1, line 25 to page 2, line 9). Comparative Example 1 is conducted in accordance with the process disclosed in Kolla.

Further, the Examiner contends that

"Kolla teaches a method of producing a cation exchange film for use in chromatography (Abst.) comprising the step of coating a silica particle with a diameter of 5  $\mu$ m with poly(butadiene-maleic acid) ("PBDMA"), placing the coated particles in a solvent containing dicumylperoxide and cross-linking the particles in the solution by reacting the particles with the incorporated peroxide(p.466, Col. 1)."

Kolla describes, at the paragraph entitled "Coating with Poly (butadiene-Maleic acid)" (in the left column of page 466), a process of producing a polymer-coated cation-exchange stationary phase as follows.

- 1) To a prepolymer (PBDMA (Poly(butadiene-Maleic acid))) solution of methanol, dicumylperoxide was added;
- 2) Silica was then suspended and homogenized;
- 3) Solvent was removed under vacuum and material was dried; and
- 4) The PBDMA finally was cross-linked by thermal decomposition of the incorporated peroxide at a temperature of 453 K for 4 hours.

In the step 4), solvent has been removed. Solvent, such as methanol, which dissolves PBDMA, is outside the scope of the claimed invention.

The reason for the removal of methanol is that when silica gel coated with PBDMA is heated in methanol, the PDBMA coating will again be dissolved. For this reason, the cross-linking reaction will not occur on the surface of the silica gel. Therefore the intended silica gel, on the surface of which PBDMA is cross-linked, cannot be obtained if a solvent, such as methanol, is used.

Conversely, the idea of Kolla is heating without a solvent to cause a cross-linking reaction on the surface of silica gel. By not using solvent, it became possible to heat at the

higher temperature of 453K (180°C). The higher temperature is necessary for decomposing dicumylperoxide to generate peroxide, and for causing the radical to react with solid polymer and cross-link the polymers to each other.

The present invention further improves the process of Kolla. The present invention is distinct from Kolla in that it relates to a process of carrying out the cross-linking reaction in a solvent. The solvent is required not to dissolve the polymer coated on the surface of a support. In contrast, Kolla relates to a process of carrying out cross-linking without using a solvent.

In the present invention, investigations showed that PDBMA was hardly dissolved in solvent (e.g., toluene). Hence, by using toluene, it became possible to carry out the cross-linking reaction of the polymer in solvent. The process is very easy for the skilled artisan to carry out. Indeed, it became possible to carry out the reaction, which is typically conducted at a temperature of 180°C, at a temperature of not higher than 100°C.

Additionally, using solvent allows cross-linking of the polymers to occur more effectively than when no solvent is used. Using solvent also avoids the risk of an explosion caused by heating the base material at 180°C, which is in the form of polymer particle.

In view of the foregoing, none of the present claims are inherently or expressly anticipated by Kolla et al. Withdrawal of the rejection is earnestly solicited.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

AMENDMENT UNDER 37 C.F.R. § 1.111  
Application No.: 10/527,066

Attorney Docket No.: Q71941

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

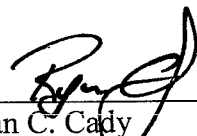
SUGHRUE MION, PLLC  
Telephone: (202) 293-7060  
Facsimile: (202) 293-7860

WASHINGTON OFFICE

**23373**

CUSTOMER NUMBER

Date: June 2, 2009

  
\_\_\_\_\_  
Ryan C. Cady  
Registration No. 56,762